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Corrective Action Study – Concordia, KS Site

ONEOK, Inc.

Project No. 58901

January 2014

Corrective Action Study – Concordia, KS Site

prepared for

ONEOK, Inc.

January 2014

Project No. 58901

prepared by

Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri

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LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
Abram	Abram Ready Mix Plant
ARAR	applicable, or relevant and appropriate requirements
AST	above ground storage tank
BER	Bureau of Environmental Remediation
bgs	below ground surface
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
CAP	corrective action plan
CAS	corrective action study
CDM	Camp Dresser McKee Federal Services
COCs	contaminants of concern
Consent Order	Consent Order Case Number 94-E-0172
EUC	environmental use control
ft^3	cubic feet
IRA	interim removal action
KDHE	Kansas Department of Health and Environment
KGS	Kansas Gas Service
LTM	long term monitoring
MCLs	maximum contaminant levels
mg/L	milligrams per liter
MGP	manufactured gas plant
ONEOK	ONEOK, Inc.

Abbreviation	Term/Phrase/Name
PA	preliminary assessment
RSK	risk-based standards
S/S	stabilization/solidification
SI	site investigation
Site	Former Concordia, Kansas MGP
SSI	site screening investigation
St.	street
SVOC	semi-volatile organic compound
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

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1.0 INTRODUCTION

Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) has prepared this Corrective Action Study (CAS) on behalf of Kansas Gas Service (KGS), a Division of ONEOK, Inc. (ONEOK) for the former manufactured gas plant (MGP) located at the southeast corner of Mill and Republican Streets in Concordia, Kansas ([Site], see Figure 1-1). Currently, the Site is owned and occupied by Abram Ready Mix. This CAS is prepared under the existing Consent Order Case Number 94-E-0172 as amended (Consent Order) for the Kansas Department of Health and Environment (KDHE) Bureau of Environmental Remediation (BER). This CAS evaluates two potential response action alternatives, in addition to the evaluation of a "no action" alternative, and recommends a response action for the Site. The objectives of the CAS are described as follows:

- To evaluate the feasibility, effectiveness, and cost of response actions based on the data collected from the several previous groundwater sampling events, and to compare and contrast those alternatives to each other and the "no action" alternative;
- To recommend and justify a response action for the Site; and
- To determine the health and environmental effects of the proposed response action.

The sections of this CAS are as follows:

- Section 1.0 INTRODUCTION
- Section 2.0 SITE INFORMATION
    - This section provides a discussion of the Site location and description, Site history, and previous investigation activities.
- Section 3.0 EVALUATION OF POSSIBLE EXPOSURE ROUTES
    - This section describes the major chemicals of concern, the possible exposure risks to contaminated soil and groundwater, and the corrective action goals for the Site.
- Section 4.0 EVALUATION OF RESPONSE ACTION ALTERNATIVES
    - This section presents the three response action alternatives, describes each alternative, and discusses the effectiveness, implementability, and costs of each alternative.

- Section 5.0 RECOMMENDED RESPONSE ACTION ALTERNATIVE
    - This section presents the recommended response action alternative.

Section 6.0 REFERENCES

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2.0 SITE INFORMATION

2.1 Site Location and Description

The Site is located at the southeast corner of Mill and Republican Streets, approximately 1,000 feet south of Lost Creek and ¾-mile south of the Republican River. The Site is located in the NW ¼ of Section 33, Township 5 South, Range 3 West in Cloud County (longitude 97°37'55.44"; latitude 39°30'10.90"). Figure 1-1 illustrates the location of the Site.

The Site is owned by the Abram Ready Mix Plant (Abram), who occupies the western half of the block, bordered to the west by Republican Street. An office building is located at the northeast corner of Republican and Third Streets. One building remains on the northern portion of the property. The building is at the southeast corner of Mill and Republican Streets and is used as an office for the ready mix plant. The former MGP building, which was located on the northeastern portion of the property, was removed. Abram Ready Mix operates an above ground fuel tank, which services an adjacent fuel pump, located near the north entrance onto the Site.

2.2 Site History

This information was largely presented in the Site Investigation (SI) Report completed by Burns & McDonnell in 2004 (Burns & McDonnell, 2004), and is provided again here for reference. The Site appears to have been vacant in the late 1800s and the early 1900s. According to Burns & McDonnell's June 1993 Preliminary Assessment (PA) of the Site, an 1878 Birds Eye View map of Concordia shows the property at Mill and Republican Streets to be vacant. A house was situated at the southwest corner of Mill and Cedar Streets, approximately ½-block east of the Site.

The earliest deed records indicate that the Concordia Gas Company took title to the Site in 1915 from a party known as Eakin & Donelan. Kansas Geologic Survey business records indicate that Eakin & Donelan may have been involved with manufactured gas production at the Site as early as 1913. This data is consistent with the historical Brown's Directory that indicates that the MGP operated at the Site from approximately 1913 to 1930. A Tenney water gas manufacturing process was reportedly used at this facility during all years of operation. Available Brown's Directories indicate the MGP generated between 11,000,000 and 25,000,000 cubic feet (ft^3) of gas per year from 1913 to 1930. In 1930, the Gas Corporation of Concordia was acquired by the Kansas Pipe Line & Gas Company of Salina, Kansas.

The earliest Sanborn map obtained that depicts the MGP facility is dated 1917. According to that map, the Concordia Gas Company occupied one building (divided into coal, generator, and engine and compressor rooms). This map shows a 25,000 ft^3 capacity gas holder west of the main gas works

building. This gas holder is thought to have been a relief gas holder and was constructed with a below ground base and tank. The map also shows three purifiers located directly south of the gas holder; a cistern; five above ground, 11,400-ft^3 capacity, iron gas holders; and a 13,500-ft^3 capacity fuel oil tank located on the southern portion of the Site. The five gas holders and fuel oil tank may have been above ground storage tanks (AST) resting on concrete saddles; however, records are not available to confirm their construction.

As inferred from Brown's Directories, minor modifications were made to the plant layout over time. The most significant of these modifications was the addition of a sixth gas holder in 1919, which is illustrated in the 1927 Sanborn Map. The cistern and purifiers shown on the 1917 Sanborn Map are not shown on the 1927 map; however, it is unknown if these structures were removed from the Site at that time or just excluded from the map. In addition to physical facility changes, Burns & McDonnell's record review indicates that the name of the facility changed from the Concordia Gas Company to the Gas Corporation of Concordia in 1928.

A 1940s aerial photograph depicts only a single building on the property south of Mill Street (formerly Greeley Street) and west of the railroad spur. A 1947 Sanborn Map also indicates all holders and tanks had been removed from the Site. Additionally, this map indicates the former gas works building was used as a saw mill and woodworking shop. A 1971 aerial photograph depicts two buildings on the Site; other Site features were not discernible due to the scale of the photograph. Aerial photographs for 1985 and 1986 indicate the facility was used for concrete operations and had a conveyor system as well as two buildings.

Prior to and since the construction of the MGP, the properties around the Site have been used for industrial and residential purposes. The properties north of the Site have been occupied by:

- Concordia Roller Mills and farther north the Republican River from 1887 to 1905. The 1905 Sanborn map indicates the Republican River channel had moved and the majority of the mill buildings were no longer present.
- A flour warehouse and dwelling located on the mill property in 1905.
- The Concordia Electric Light Company, located to the northeast from 1889 to 1911. The Concordia Roller Mill moved south of the electric plant in 1905. The facility was used as a carpentry shop in 1917 and a concrete products plant in 1927.
- Kansas Power and Light Company, located at the northeast corner of Republican and Mill Streets, used for pole storage in 1946 (Union Pacific Railroad, 1946).

The properties to the east of the Site were used by the following facilities:

- The Concordia City Water Works operated a plant with five driven wells from 1889 to 1911. The 1905 Sanborn Map indicates the facility pumped water from a system of 24 well points. No evidence has been found to indicate the wells are still present.
- A spur of the Union Pacific Railroad was built directly east of the Site by 1905.
- A residence was located on the southeast portion of Block 176 from 1889 to 1917 when it was replaced by a salvage yard. The salvage yard is no longer present; it is unknown when the salvage yard was decommissioned.
- Boyd Oil Company and Standard Oil Company occupied the east half of Block 176 from 1927 until at least 1993. Currently, there are no existing oil operations on this property; however, some ASTs, concrete saddles, and former facility buildings remain.

A spur of the Union Pacific Railroad and single family residences have occupied the property directly south of the Site. Other property uses include:

- An engine house that replaced some residences in 1947.
- West 3rd Street that forms the south boundary of Block 176.

Republican Street has been located directly west of the Site since at least 1889. Residential housing was and still is located beyond the street to the west.

2.3 Previous Investigations

2.3.1 CDM, 1993

On behalf of the United States Environmental Protection Agency (USEPA), Camp Dresser McKee Federal Services (CDM) conducted an investigation of the Site and recorded the results in the *Site Investigation Report for Site Assessment Activity at Concordia FMGP* dated January 29, 1993. CDM collected 14 soil and groundwater samples from the Site for analyses. The sample results indicated heavy metals, semi-volatile organic compounds (SVOC), and volatile organic compounds (VOC) were located in the subsurface soil and groundwater at the Site. Elevated levels of zinc and mercury and six SVOCs were detected in the subsurface soil above background levels. Laboratory results also identified eight dissolved metals, five SVOCs, and 22 VOCs above background levels or above maximum contaminant levels (MCLs) in groundwater samples collected on the Site. At the time of CDM's investigation, no Level I or Level II targets were identified for the former MGP.

As part of the above report, CDM prepared a Site Screening Investigation (SSI) and a Site Inspection Score sheet for the Site. An overall score of 13.0 was calculated for the Site. This score indicates no further activity for the Site. A score of 0 is indicative of the least level of concern, whereas a score of 100 is indicative of the highest level of concern. The groundwater pathway score was 7.0, indicative of the absence of Level I or Level II targets. The surface water pathway scored 24.0 due to the potential for groundwater to exchange with surface water. The soil exposure pathway, considered a potential threat, scored 1.0. The air pathway was not suspected to pose a threat and was scored a zero. The report concluded that "there is an observed release of groundwater and downgradient municipal wells that are within one mile of the Site, could potentially be effected (sic)".

The 1993 CDM report concluded that there may have been two separate gas holders located on the west side of the former MGP building between the years of 1917 and 1927. It appears that this conclusion was based on a review of the 1917 and 1927 Sanborn Maps that show gas holders of different shapes in slightly different locations. The 1917 Sanborn Map indicates a gas holder located adjacent the northwest corner of the MGP gas generator room. The 1927 Sanborn Map indicates a gas holder located on the south side of the gas holder where purifiers are shown on the 1917 map. Burns & McDonnell's review of the same Sanborn maps and the Brown's Directories is inconclusive as to whether two separate gas holders existed simultaneously at the Site. Only the 1929 Brown's Directory listing for the Site identifies the gas storage capacity of the Site; both the 1929 listing and the 1927 Sanborn indicate 25,000 ft^3 of relief gas storage. It is possible that the two Sanborn maps have inherent inaccuracies and that the Site only had one gas holder throughout its operating years.

2.3.2 Burns & McDonnell, 1993

On behalf of Western Resources, Inc., Burns & McDonnell conducted a PA of the Site in June 1993. The objectives of the PA were:

- Determine the potential for contamination as a result of the MGP operation;
- Assess the degree of potential contamination, if present; and
- Assess the potential impact of any contamination on human health and the environment.

The PA did not identify any indications of Site contamination exposure concerns. No subsurface sampling was conducted as part of the PA.

2.3.3 Burns & McDonnell, 2003

In September 2003, Burns & McDonnell completed an SI. Two exploratory trenches were completed at the Site to identify the location of the below ground gas holder(s), tank(s), and cistern, if present. The

location and depth of the below ground gas holder was determined during this effort; however, the cistern was not located during the trenching activities. The location of the former purifiers was determined to be inside the existing building; therefore, only probing was completed to investigate the purifiers to minimize the disruption to the existing facility. No physical evidence of the purifiers was identified.

A previously unknown structure may have been identified on the north side of the gas holder at Sample Location CP16. The structure contained crushed rock, sand, and soil fill with water and a black, viscous liquid at the refusal depth (presumed bottom of the structure). Refusal occurred at a depth of five feet below ground surface (bgs).

Soil sampling was conducted to determine the presence of impacted materials inside and outside the former MGP structures. In addition, samples were collected from within the below ground gas holder and adjacent unknown structure for disposal characterization purposes. Samples collected had detected concentrations of VOCs and SVOCs above KDHE Risk-based Standard (RSK) values. Four temporary piezometers were installed at the Site to determine the depth to groundwater and groundwater flow directions. After the completion of these field activities, the Site was restored to the pre-investigation condition.

It was recommended at the conclusion of this excavation that three monitoring wells be installed to collect groundwater elevation data and to determine if MGP-related product is present on the groundwater beneath the Site.

2.3.4 Burns & McDonnell, 2008

In 2008, Burns & McDonnell completed an Interim Removal Action (IRA) at the Site. The objectives of the IRA as originally proposed were:

- Remove potential sources of soil and groundwater impacts by excavating MGP residuals and impacted material in and/or around select former MGP structures; and
- Manage and dispose of the excavated materials in accordance with KDHE and USEPA regulations.

MGP residuals and visibly impacted soil were removed from the areas designated, and the IRA activities resulted in the removal of material inside below ground gas holder tank (approximately 250 tons); material inside structure located on north side of gas holder tank (approximately 50 tons); and impacted

material located between below ground gas holder tank and previously referenced structure (approximately 1304 tons).

With the exception of the southern portion of the former gas holder tank, the entire former gas holder and associated structures were removed. The debris was consolidated with the other excavation spoils. The portion of the gas holder tank left in place was scraped clean using the excavator before backfill was placed. This portion of the wall was not removed because removal would have compromised excavation safety and would have undermined the concrete slab on the south side of the excavation. The visually impacted soil located between and surrounding the two structures was removed to a depth of 23 feet bgs. The depth of the excavation was limited by saturated sand in the capillary fringe. As a result, all vadose soil in the excavation was removed. After the over excavation activities were completed, the confirmation data results indicated that, although some analytes were present at concentrations above the laboratory limit of detection, the reported concentrations of the constituents detected in the remaining vadose soil within the area of concern do not exceed the Tier III Cleanup Goals for Direct Soil Exposure identified in the Remediation Objectives.

2.3.5 Burns & McDonnell, 2011

After discussions and correspondence between KDHE and ONEOK, a letter proposal to sample and analyze background groundwater was submitted to KDHE (letter dated June 13, 2011). ONEOK completed field activities on August 9, 2011. ONEOK collected eleven groundwater samples from locations within Concordia city street rights-of-way. A geoprobe was used to drive a small diameter hole to a depth of approximately four to five feet below the water table, approximately 25 feet below grade, and a peristaltic pump was used to slow purge a small amount of water from the hole to insure that the hole was sufficiently below the water table to collect a representative sample. Most samples were collected from depths of 24 to 29 feet bgs; however, at one location samples were collected from approximately 39 feet bgs. All samples were field filtered and analyzed for arsenic and dissolved iron. For purposes of utility clearance, sample numbers were identified by the following street addresses:

- 116 Washington St. – CBG-01 and CBG-02
- 221 East 2nd St. – CBG-03 and CBG-04
- 236 West 2nd St. – CBG-05 and CBG-06
- 511 West 3rd St. – CBG-07 and CBG-08
- 322 West 5th St. – CBG-09
- 408 East 5th St – CBG-10 and CBG-11

It is noted that samples were collected in the general vicinity of these addresses and two samples were generally collected from each general location. Analytical results for arsenic ranged from 0.0020 milligrams per liter (mg/L) in samples collected from CBG-05 to 0.0062 mg/L in samples collected from CBG-04.

Based on data generated from the Concordia MGP site and research completed on behalf of ONEOK, the following conclusions were presented in the background study:

- Remediation at the site was completed by removal of impacted soils during 2008 and KDHE provided ONEOK a "No Further Remediation of Soils" letter dated January 12, 2010.
- Three of the five monitoring wells installed at the site are not within the foot-print of the MGP operations and one well (CMW-05) is located within the City of Concordia street right-of-way. The two western most wells (CMW-03 & CMW-04) are on the current owner's property but are located within the vacated Republican Street right-of-way, approximately a hundred feet west of the MGP facilities.
- Arsenic levels in groundwater from the four wells located at the corners of the current property (CMW-01, CMW-02, CMW-03 and CMW-04) have been below both the Residential and Non-Residential RSK values.
- The MGP coal storage area that potentially could have contributed to arsenic in groundwater was located on the east side of the site between monitoring wells CMW-01 and CMW-02.
- Eleven groundwater background samples analyzed for arsenic resulted in determination of an average background arsenic level of 0.0036 mg/L with a 95% tolerance limit of 0.0075 mg/L and a 99% tolerance limit of 0.0106 mg/L.
- Arsenic levels for on-site soils are significantly below published data levels for arsenic at MGP sites and are not believed to be a significant contributor to arsenic levels in groundwater.
- Groundwater gradient at the site is very flat and has shown relatively little change in direction or gradient even though water levels have varied by more than two feet over time.

2.3.6 Groundwater Sampling

Five groundwater monitoring wells (CMW-01 to CMW-05) were installed between June 5, 2007 and August 29, 2007. These monitoring wells primarily line the perimeter of the Site (see Figure 1-1). Burns & McDonnell sampled the monitoring wells in August 2007, twice in 2009, once in October 2010, and most recently in May 2013. CMW-01 was not sampled after the October 2010 event due to damage inflicted by the current property owner; the well has not been rehabilitated. Based on sampling events completed to date, groundwater beneath the site flows the northwest. The only constituent that has been

consistently detected above KDHE Residential or Non-Residential Tier II RSKs is arsenic. Arsenic has been detected above the RSKs (0.01 mg/L) at concentrations ranging from 0.011 mg/L in the sample collected from CMW-02 to 0.045 mg/L in the sample collected from CMW-05 during the most recent event.

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3.0 EVALUATION OF EXPOSURE ROUTES

3.1 Contaminants of Concern

The major contaminants of concern investigated at the Site include VOCs, PAHs, metals, and cyanide. For this section, only chemicals that were detected at levels greater than the current (October 2010) KDHE RSK concentrations are discussed. As discussed previously in Section 2.3, soil remediation activities have already been completed at the Site in 2008, and the Site was issued a "No Further Action for soil" letter in January 2010. In groundwater samples, only arsenic has been detected at concentrations in excess of the groundwater pathway KDHE RSK values for non-residential and residential scenarios.

3.2 Potential Receptors

As stated in Section 2.1, the Site is located at the southeast corner of Mill and Republican Streets, approximately 1,000 feet south of Lost Creek and ¾-mile south of the Republican River. The Site itself is zoned as Light Industrial; the land adjacent to the east and west is residential and the land adjacent to the north and south is commercial and industrial property.

A water well search was conducted using the Kansas Geological Survey's online search database. The following information was collected from that database:

- The city of Concordia, Kansas has a public water supply well approximately 1,500 feet to the east of the Site.
- 158 wells are located with of Section 33, Township 5 South, Range 3 West and of Section 32, Township 5 South, Range 3 West.
- There are six domestic use wells within the two Sections; however, only one is within 1,000 feet of the Site. This domestic use well is located south of the Site.
- There is one lawn and garden well located adjacent to the northwest border of the Site.

Public utilities at the Site include water, gas, telephone and electric. The water and gas lines run along the eastern portion of the site. The electric service is an overhead service that enters the Site from the north and terminates in the middle of the property. The telephone line runs from the existing building east to the center of the Site where the electric service terminates (see Figure 1-1).

Based on the results of the ongoing groundwater sampling, arsenic was detected above the KDHE RSK residential and non-residential groundwater screening levels, as well as, the calculated background value discussed in Section 2.3.5. In the most recent groundwater sampling event (May 2013), arsenic was

detected above the KDHE RSKs (0.01 mg/L) in samples collected from three monitoring wells: CMW-02, CMW-03, and CMW-05. Detected concentrations ranged 0.011 mg/L in the samples collected from Monitoring Wells CMW-02 and CMW-03 to 0.045 mg/L in the sample collected from Monitoring Well CMW-05.

3.3 Exposure Pathways

Exposure pathways evaluated at the Site include direct contact via ingestion and dermal contact with groundwater for potential on-site receptors.

3.3.1 Soil

An IRA targeting soil was completed, as described in Section 2.3.4, in 2008. Upon the completion of excavation activities, the excavated area was backfilled and a geotextile liner was placed. In addition to this engineered barrier, an Environmental Use Control (EUC) Agreement was completed for the Site (see Appendix A). KDHE must be notified in the event of any planned excavation. Therefore, direct contact with any soils left in place after the IRA is controlled through the EUC.

3.3.2 Groundwater

Arsenic is present in the groundwater at concentrations above the KDHE RSKs and calculated background levels. Groundwater at the Site is approximately 18 to 20 feet bgs. As noted in Section 3.3.1, there is a geotextile liner in place below grade where the former MGP gas holder was excavated, limiting access to the saturated zone. Further, the EUC also limits the Site from being zoned as residential and from having domestic use wells completed at the Site. The nearest domestic use well is approximately 1,000 feet to the south (upgradient) of the Site. The other five domestic use wells are further away and are cross- or upgradient of the Site. Groundwater is supplied publicly by the City of Concordia, thus making it unlikely that exposure to groundwater would occur via this pathway.

3.4 Corrective Action Goals

The KDHE RSK value for residential and non-residential groundwater scenarios were used for the corrective action goals for the Site. These values are located in Appendix A of the KDHE RSK Manual, 5th Version, dated October 2010.

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4.0 EVALUATION OF RESPONSE ACTION ALTERNATIVES

This section provides a description of two response action alternatives and a "no action" alternative for treating impacted groundwater at the Site. It should be noted that approval for any alternative other than the "No Action" alternative will be required from the land owner (Abram). The evaluation includes a detailed individual and comparative analysis for each proposed response action, and the "no action" alternative, to evaluate their ability to satisfy the following criteria:

- Overall protection of human health and environment;
- Compliance with Federal and State applicable, or relevant and appropriate requirements (ARARs);
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, and volume of contamination through treatment;
- Short-term effectiveness
- Implementability;
- Cost; and
- Community acceptance

The first two bullet points are threshold criteria, and must be satisfied in order for the response action alternative to be considered viable.

A description of each of the response action alternatives is discussed in detail in the following sections and presented on Table 4-1. Costs for each alternative include a 10 percent contingency.

Groundwater contamination above RSK values exist for arsenic at the Site. Potential exposure pathways include direct contact via groundwater ingestion and dermal contact.

4.1 No Action

As its name implies, the "no action" alternative requires no further action at the Site. With this alternative, no additional treatment or monitoring activities would be performed.

The major advantage of using the "no action" alternative is that there is nothing to implement, and therefore, there are no costs.

The major disadvantage of using this alternative is that potential exposures to contaminated groundwater would not be controlled. However, based on the levels of arsenic detected (two of the three monitoring

wells had detections just above the KDHE RSK) it is possible that the levels of arsenic could reduce with time. The detected concentrations of arsenic in Monitoring Well CMW-05 have remained consistently above the KDHE RSK with time; and with the No Action alternative, would likely remain so.

Since the No Action alternative does not satisfy both threshold criteria, it is not viable for this Site and is not evaluated further.

4.2 Long Term Monitoring with EUC

Long term monitoring (LTM) refers to the process of regularly sampling groundwater monitoring wells to establish trends in the data collected. EUCs already in place for the Site were discussed in Section 3.3 and are provided as Appendix A. This alternative is considered a "passive" one. Short- and long-term effectiveness/permanence of this alternative includes mitigation of the potential receptor pathways by restricting direct contact to groundwater. Community acceptance should not be a factor due to relatively low levels of arsenic detected, the historical IRA excavating source material removal, and the EUCs already in place for the Site.

4.2.1 Preliminary Design/Approach

A Corrective Action Plan (CAP) would be completed and would detail LTM procedures to be followed during field activities at the Site. For this response action, it is proposed that Monitoring Wells CMW-02, CMW-03 and CMW-05 will be sampled on a quarterly basis for the first year and then annually from years 2 through 20, at which time it is anticipated that the Site will be moved to No Further Action. It is possible that an additional monitoring well could be required; if so, it will be installed at the end of the second year of sampling. Determination for the addition of this well will be based on data collected during the first 2 years of the LTM implementation. Samples will be collected and analyzed for arsenic only, with samples being field filtered prior to shipment to an off-site laboratory. An LTM Report would be submitted to KDHE for review upon the completion of each sampling event. The EUC, which already exists for the Site, would be used to restrict rezoning of the Site to residential and to prohibit the completion of domestic use wells at the Site. Due the EUCs in place and the continued monitoring to ensure that contamination is not spreading further to off-site receptors, this response action is protective of human health and the environment.

4.2.2 Estimated Cost

A description of the estimated costs for applying this technology to the Site is presented in Table 4-2. The costs assume that LTM activities will take place for a total duration of 20 years with quarterly

sampling for the first year and annual sampling thereafter. Costs also assume that the EUC already in-place is sufficient.

4.2.3 Advantages

The advantages of this response action are the following:

- The monitoring wells and EUCs are already in place so the implementability of the option is proven.
- Based on the low concentrations of arsenic and the relative expense of active treatment, this option is relatively cost effective and mitigates the potential receptor pathways.
- The addition of consistent data from set monitoring points will ensure that contaminant migration off-site is being controlled.

4.2.4 Disadvantages

The disadvantages of this response action are the following:

- There is no reduction of contaminant volume with this response action.
- Arsenic concentrations at one monitoring well (CMW-05) have been consistently above the KDHE RSK (0.01 mg/L). Since this is not an active response action, it is likely that concentrations at this location will remain above this level. However, based on the EUCs already in place and the potential to add an additional off-site downgradient monitoring well, the spread of this contaminant to off-site receptors is not anticipated.

4.3 In-Situ Stabilization/Solidification (ISS)

In-situ stabilization/solidification (S/S) immobilizes contamination by mixing soil, groundwater, and contaminate with site-specific cement and additives. Upon completion of implementation, a performance monitoring period is performed to verify the effectiveness of the treatment. Since this technology renders the contaminate immobile, potential receptor pathways will be incomplete and should garner community acceptance. Based on a preliminary review of geological/hydrogeological conditions, it is expected that this technology is implementable. As stated above, Abram will need to be contacted and grant approval prior to implementation of this alternative.

4.3.1 Preliminary Design/Approach

Prior to implementation, a laboratory bench-scale sample study including extensive soil sampling would be required to provide analytical information to determine the optimal mixture ratio of cement and additive. Soil samples would be collected and analyzed for arsenic leaching potential. Following

laboratory analytical results and data evaluation, mobilization of soil mixing equipment and materials would occur. Soil mixing would be accomplished using 10 feet diameter rotary auger device, jet grouting, or other methods. For the purpose of this CAS, it was assumed that the treatment area would be 30 feet x 40 feet x 25 feet in the vicinity upgradient of Monitoring Well CMW-05, with a 10% overlap of treatment columns. Soil would be mixed down to depth and allowed to cure. Due to the additional material volume added to the subsurface, limited excavation and grading may be required flowing treatment to restore the ground surface elevations.

Performance monitoring for a period of four quarters would then be implemented to evaluate the effectiveness of the remediation activities. Performance monitoring samples would only be collected from Monitoring Well CMW-05.

4.3.2 Estimated Cost

A description of the estimated costs for applying this technology to the Site is presented in Table 4-2. The costs assume that no soil will be excavated, transported or disposed of. Costs also assume that performance monitoring samples will be collected from Monitoring Well CMW-05 only.

4.3.3 Advantages

The advantages of this response action are the following:

- This response action renders the arsenic in groundwater immobile thus is protective of human health and the environment.
- Pending the results of the performance monitoring, this response action is expected to comply with ARARs and be effective in the short- and long-term.
- Extraction, discharge and treatment of water are not required.

4.3.4 Disadvantages

The disadvantages of this response action are the following:

- There is no reduction of contaminant volume with this response action.
- The relative net present costs are high compared to Response Actions 1 and 2.
- It is possible that the treatment are would have to be expanded to fully treat the arsenic in the groundwater.

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5.0 RECOMMENDED RESPONSE ACTION ALTERNATIVE

The recommended response action alternative to manage the groundwater contamination at the Site is Response Alternative 2 – LTM with EUC. This option is the most cost effective, viable response action and provides adequate protection to human health and the environment. It provides for continued monitoring of selected Site monitoring wells to demonstrate control of the contaminant plume prior to leaving the Site (with the possible addition of another downgradient monitoring well). There are little to no health and safety risks in designing and implementing this alternative.

In contrast, the higher costs and potential expansion of the treatment area associated with Response Action 3 make it less desirable since Response Action 2 satisfies the threshold criteria.

The "no action" alternative is not optimal due to the elevated levels of arsenic in the groundwater at three monitoring wells. Due to these elevated levels, groundwater must, at a minimum, be continually monitored to evaluate whether the contaminant plume is continuing to attenuating further off-site.

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Burns & McDonnell, 2008. *Interim Removal Action Completion Report for Former Manufactured Gas Plan, Concordia, Kansas, ONEOK.* April.

Burns & McDonnell, 2011. *Groundwater Arsenic Issue for Former Manufactured Gas Plan, Concordia, Kansas: ONEOK*. November.

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KDHE, 2010. *Risk-Based Standards for Kansas, RSK Manual – 5th Version*. KDHE BER. October.

Sanborn Fire Insurance Maps for Concordia, Kansas, 1889, 1896, 1905, 1911, 1917, 1927, and 1947.

* * * * *

TABLES

Table 4-1
Response Action Alternatives
Former Concordia MGP, Concordia, KS

Response Action	Threshold Criteria - Must Be Satisfied		Short- and Long-Term Effectiveness and Permanence	Reduction of Toxicity, Mobility, and Volume of Contamination Through Treatment	Implementability	Community Acceptance	Total Net Present Value Cost*
	Overall Protection of Human Health and Environment	Compliance with ARARs					
No Action	-Since concentrations at CMW-05 have consistently been above KDHE RSKs, this RA is not protective of human health or the environment.	-Since concentrations at CMW-05 have consistently been above KDHE RSKs, this RA does not comply with ARARs.	-There is No Action, and therefore, this RA does not meet short- and long-term effectiveness and permanence requirements.	-There are no signs of active degradation of arsenic in groundwater at the Site, and since, there is no treatment proposed as part of this RA, reductions in contaminant mass will not be likely.	-This RA is readily implementable because no action is taking place.	-Since arsenic concentrations above the KDHE RSKs are being left in place, it is unlikely this RA would be accepted by the community.	$0
Long Term Monitoring with Environmental Use Control	- Due to the EUCs in place and continued monitoring to ensure that contamination is not spreading further to off-site receptors, this RA is protective of human and the environment.	- Arsenic concentrations at one monitoring well (CMW-05) have been consistently above the KDHE RSK (0.01 mg/L). Since this is not an active RA, it is likely that concentrations at this location will remain above this level. However, based on the EUCs already in place and the potential to add an additional off-site downgradient monitoring well, the spread of this contaminant to off-site receptors is not anticipated.	- This RA mitigates the potential receptor pathways by restricting direct contact to groundwater; therefore, making it effective short- and long-term and permanent.	-There are no signs of active degradation of arsenic in groundwater at the Site, and since, there is no treatment proposed as part of this RA, reductions in contaminant mass will not be likely.	-The monitoring wells and EUCs are already in place.	- This should not be a factor since due to the relatively low levels of arsenic detected, the historical Interim Removal Action, and the EUCs already in place.	$219,583
In-Situ Stabilization and Solidification	- This response action renders the arsenic in groundwater immobile thus is protective of human health and the environment.	- Pending the results of the performance monitoring, this RA is expected to comply with ARARs.	- This RA mitigates the potential receptor pathways by restricting direct contact to groundwater; therefore, making it effective short- and long-term and permanent.	- There are no signs of active degradation of arsenic in groundwater at the Site, and since, this RA does not reduce contaminant mass.	- Based on a preliminary review of geological/hydrogeological conditions, it is expected that this technology is implementable.	- Since this technology renders the contaminate immobile, potential receptor pathways will be incomplete and should garner community acceptance.	$342,238

* - Costs are estimated, and for comparison only.
ARARs - Applicable or Relevant and Appropriate Requirements
RA - Response Action

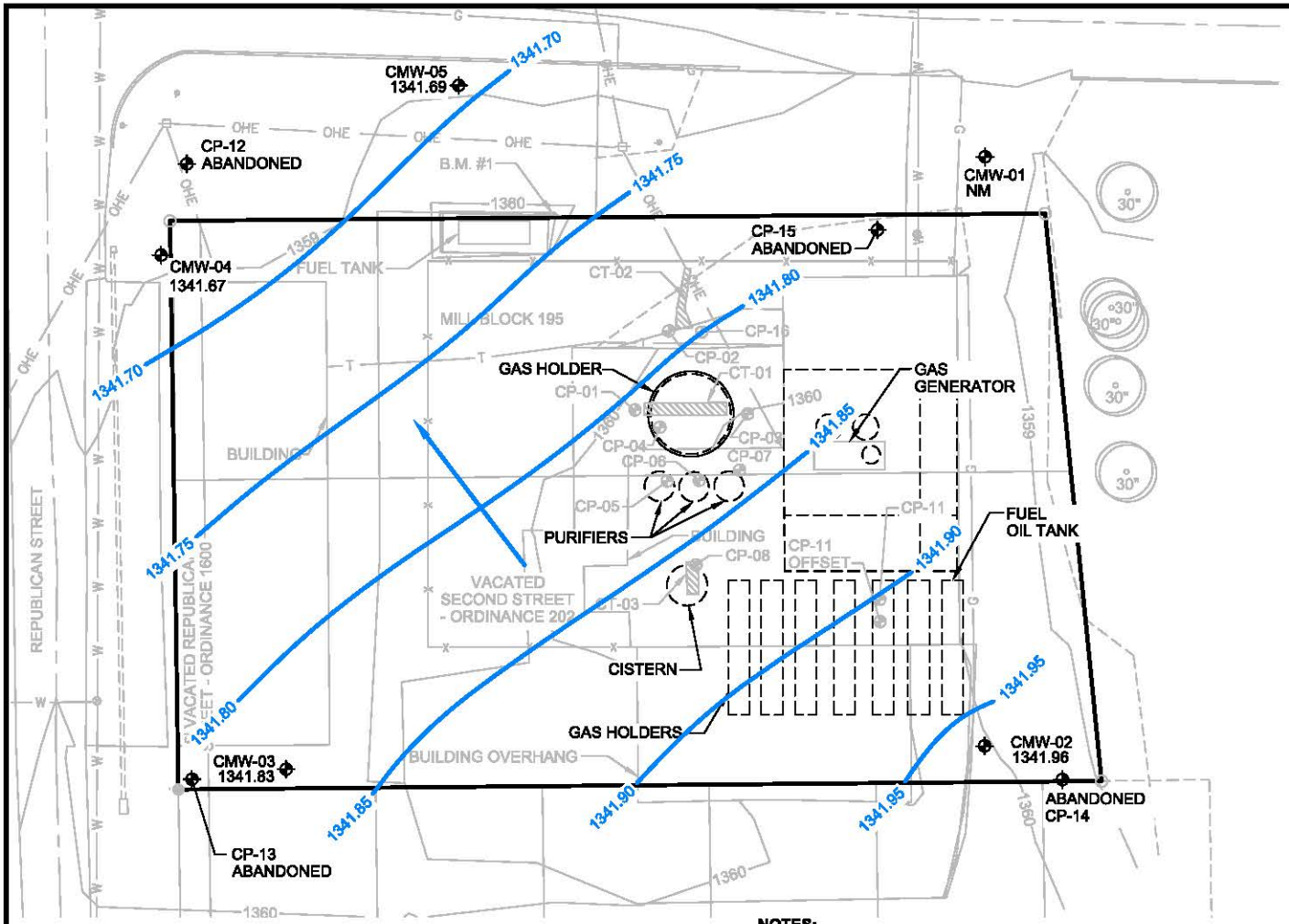
Table 4-2
Cost Summary for Response Action Alternative Evaluation
Former Concordia MGP, Concordia, KS

	Hours	Labor	Travel	Expenses	Sub Labor	Contingency	Total
Response Action 1 - No Action							
Response Action 1 Total		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
						Response Action 1 Net Present Value	***$0***
Response Action 2 - LTM with EUC							
Corrective Action Plan		$0	$0	$15,000	$0	$1,500	$16,500
LTM Sampling - Year 1		$6,640	$0	$27,308	$994	$3,494	$38,436
LTM Sampling - Year 2 and Monitoring Well Installation		$3,708	$0	$7,454	$1,717	$1,288	$14,167
LTM Sampling - Year 3 to 20		$45,311	$0	$158,565	$0	$20,388	$224,263
Response Action 2 Total	**326**	**$55,659**	**$0**	**$208,327**	**$2,711**	**$26,670**	**$293,366**
						Response Action 2 Net Present Value	***$219,583***
Response Action 3 - In-Situ Stabilization and Solidification							
Remedial Design and Workplan		$26,660	$0	$250	$0	$2,691	$29,601
Bench-Scale Study		$27,730	$0	$350	$21,920	$5,000	$55,000
Full Scale Design and WP Update		$20,060	$0	$100	$500	$2,066	$22,726
Full Scale In-Situ S/S		$19,217	$0	$250	$181,780	$20,125	$221,372
Performance Monitoring		$28,160	$0	$900	$748	$2,981	$32,788
Response Action 3 Total	**782**	**$121,827**	**$0**	**$1,850**	**$204,948**	**$32,862**	**$361,487**
						Response Action 3 Net Present Value	***$342,238***

General Assumptions:

- Assumes a 10% contingency for all tasks.
- A discount rate of 3% was used for NPV calculations.
- An inflation rate of 2% was used for NPV calculations.

FIGURES



LEGEND

- GROUNDWATER ELEVATIONS (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- KDHE SITE TRACT
- W — WATER LINE
- G — GAS LINE
- T — TELEPHONE CABLE
- OHE — OVERHEAD ELECTRIC LINE
- x — FENCE LINE
- SECTION LINE
- TOPOGRAPHIC CONTOUR
- TRENCH LOCATION
- 1341.70 — GROUNDWATER SURFACE ELEVATION (MSL)
- 1/2" BAR SET
- 12" BAR FOUND
- WATER VALVE
- POWER POLE
- DEAD MAN
- DECIDOUS TREE
- WELL OR TEMPORARY PIEZOMETER LOCATION
- DIRECT-PUSH BORING LOCATION

NOTES:

1. MGP STRUCTURES IN DASHED LINES ARE BASED ON INFORMATION FROM SELECT SANBORN MAPS; LOCATIONS ARE APPROXIMATE.
2. MGP STRUCTURE IN SOLID LINES ARE BASED ON FIELD SURVEYS.
3. SURVEY COMPLETED BY SCHWAB-EATON, P.A. OF MANHATTAN, KS, 2003.
4. ANALYTICAL DATA INDICATES DETECTED CONCENTRATIONS EXCEEDING RESIDENTIAL AND/OR NON-RESIDENTIAL RSK VALUES FOR THE GROUNDWATER PATHWAY.
5. GROUNDWATER LEVELS MEASURED ON MAY 22, 2013.

N

0 30' 60'

SCALE IN FEET

Figure 1-1

GROUNDWATER ELEVATION
MAY 22, 2013
CONCORDIA, KANSAS

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K:\ENV\ONEOK INC\SITE\58901\DELIVER\CONCORDIA\MAY 2013 GW\58901-CONCORDIA-GW-MAY13-FG1.DWG 6/19/2013 7:45 AM TDUCKER

APPENDIX A - EUCA #08-EUC-0038

KANSAS

Mark Parkinson, Governor
Roderick L. Bremby, Secretary

DEPARTMENT OF HEALTH
AND ENVIRONMENT

www.kdheks.gov

Division of Environment

October 15, 2009

CERTIFIED MAIL
Return Receipt Requested

Paul Abrams, President
Abram's Ready-Mix, Inc.
915 East 8th Street
Beloit, Kansas 67420

RE: Environmental Use Control Application Approval and Agreement for the ONEOK FMGP – Concordia Site, Cloud County, Kansas
KDHE Project Number: C5-015-70031 EUCA Number: 08-EUC-0038

Dear Mr. Abrams:

The Kansas Department of Health and Environment-Bureau of Environmental Remediation (KDHE-BER) has reviewed and approved the Environmental Use Control application and proposed environmental use controls for the Former MGP Site in Concordia, Kansas. The application package was provided by ONEOK, INC. on behalf of Abram's Ready Mix, the landowner of the subject property.

Enclosed you will find the Environmental Use Control Agreement (EUCA) developed by KDHE. The EUCA represents the specific terms and conditions of the environmental use controls to be placed upon the property as deemed necessary by KDHE-BER and as requested in the application. Based upon the application and information from KDHE-BER files, the property has been classified as a Category 2 property, which requires a one-time payment of $10,000 to fund the inspection and tracking costs associated with this property for the duration of the EUCA. ONEOK, INC. has verbally agreed to cover the costs of this one-time payment as specified in the EUCA.

Please have the authorized representative for Abram's Ready-Mix, Inc. sign the EUCA with notarization of their signature if the terms and conditions are found to be acceptable. The **original** EUCA must then be recorded in the office of the Register of Deeds for Cloud County, Kansas. Finally, a copy of the notarized EUCA, bearing the stamp of the Register of Deeds for Cloud County to document the recording, and requisite funding must be returned to KDHE within ninety (90) days of certified receipt of this letter.

Thank you for your cooperation in this matter. Should you have any questions, you may reach me by telephone at 785-291-3807 or by e-mail at SAller@kdheks.gov.

Sincerely,

Stuart M. Aller

Stuart M. Aller, Environmental Scientist
Restoration & Long-Term Stewardship Unit
Bureau of Environmental Remediation

Enclosure

c: Deanna Ross>Stuart Aller>EUC Tracking File>ONEOK FMGP – Concordia Site File>C5-015-70031-2 (08-EUC-0038)
John Cook, KDHE (w/out enclosure)
Alan Kettle, Kansas Gas Service

DOCUMENT NUMBER: 08-EUC-0038
PROJECT NUMBER: C5-015-70031
PROPERTY CATEGORY: 2

ENVIRONMENTAL USE CONTROL AGREEMENT

Abram Ready Mix, INC., a Kansas corporation, having a mailing address of 915 East 8th Street, Beloit, Kansas, hereinafter referred to as "the Owner", is the owner of real property known as the Former Manufactured Gas Plant – Concordia Site, at 410 Mill Street in the city of Concordia, Cloud County, Kansas 66901, as shown on the map attached hereto as Exhibit A, hereinafter referred to as "the Property", and more particularly described by the following legal description:

> **A part of Mill Block 195 and vacated 2nd Street, City of Concordia, Cloud County, Kansas, more particularly described as follows:**
>
> **Commencing at the Northwest Corner of Mill Block 176, thence on an assumed bearing of North 00°50'44" West, along the East side of Republican Street, a distance of 150.00 feet to the South line of Mill Street; thence North 89°30'51" East, along the South line of Mill Street, a distance of 67.45 feet to the TRUE POINT OF BEGINNING:**
> **THENCE, continuing along the South line of Mill Street, North 89°30'51" East a distance of 140.00 feet;**
> **THENCE South 00°25'26" East a distance of 114.08 feet;**
> **THENCE South 89°30'51" West a distance of 140.00 feet;**
> **THENCE North 00°25'26" West a distance of 114.08 feet to the POINT OF BEGINNING. Said tract contains 0.366 acres, more or less.**

And which shall likewise include any and all parcels contained therein.

WHEREAS the Owner has requested, by application to the Kansas Department of Health and Environment, hereinafter referred to as "KDHE", to restrict, prohibit and/or limit certain uses of the Property in accordance with Kansas Statutes Annotated (K.S.A.) 2007 Supp. 65-1,221 *et seq.*

KDHE has approved the Owner's application to restrict, prohibit, and/or limit certain uses of the Property since residual contamination, which exceeds department standards for unrestricted residential use, remains on the Property.

The conditions at the Property as of the date of KDHE's approval of the application are as follows:

> **A source removal action was conducted at the Property in 2008 for soils impacted by former manufactured gas plant operations. The excavation was terminated at 23 feet below the ground surface where groundwater was encountered. The presence of existing building foundations and concrete slabs on the Property prevented the removal and proper disposal of all impacted soils at the sidewalls of the excavation. Benzene**

and naphthalene remain at concentrations exceeding either their corresponding KDHE Tier 2 RSK residential or non-residential use (soil-to-groundwater pathway) screening values as established in the *Risk-Based Standards for Kansas RSK Manual – 4th Version* (RSK), dated June 2007. The excavated area was backfilled with common clean fill and then graded with six inches of crushed rock to match the existing grade. Unfiltered groundwater samples taken from monitoring wells directly adjacent and surrounding the Property indicate arsenic, and periodically lead, are prevalent in the local groundwater above the primary maximum contaminant levels as established by the United States Environmental Protection Agency.

KDHE has determined, based on conditions at the Property, the application and other information pertaining to the Property, that environmental use controls are appropriate to ensure future protection of public health and the environment, subject to the conditions herein. Therefore, in accordance with K.S.A. 2007 Supp. 65-1,226 and the rules and regulations promulgated thereunder, the Property is hereby designated by KDHE as a Category 2 property.

The Owner acknowledges that this Agreement runs with the land and is binding on all successors in interest in the Property pursuant to K.S.A. 2007 Supp. 65-1,227(b); and is enforceable by KDHE pursuant to K.S.A. 2007 Supp. 65-1,229, unless and/or until such requirements are mutually terminated in writing by KDHE and Owner or Owner's successor in interest. For purposes of the obligations set forth in this document, "Owner" shall be deemed to include the current Owner and any and all successors in interest.

This Agreement shall be recorded, by the Owner, with the Cloud County Register of Deeds for the purposes of providing notice of the environmental use controls, protecting public health and the environment, and to prevent interference with the operation, performance, and/or maintenance of any remedial actions on the Property.

RESTRICTIONS, PROHIBITIONS AND LIMITATIONS:

Due to the environmental conditions described above, it is the desire and intention of the Owner to restrict, prohibit, and/or limit the following uses of the Property:

A. The Property shall not be used for residential purposes of any type including, but not limited to, a residence or dwelling, including a house, apartment, mobile home, nursing home, or condominium; or public use area, including a school, educational center, day care center, playground or similar structure, unrestricted outdoor recreational area, or park.

B. The Owner shall not allow water wells to be drilled, constructed, or used on the Property for domestic purposes, which use involves or may involve human consumption and/or other possible human contact uses. This restriction does not prohibit drilling, construction or use of water wells for the purpose of containing product or contamination, or for contaminated ground water recovery, monitoring, or other remediation activities as approved in writing by

KDHE.

C. The Owner shall not file or petition to initiate re-zoning of the Property without fifteen (15) calendar days prior notification to KDHE.

D. KDHE shall be provided with notification fifteen (15) calendar days prior to any excavation activities.

E. KDHE may require sampling of soils prior to, during or after any excavation activities. Based on the potential hazards associated with the soil disturbance activities, KDHE may deny the request to disturb the soils or may require specific protective or remedial actions for allowing such soil disturbance activities to occur on the Property.

F. The Owner shall inform all easement holders, contractors and/or other workers performing any excavation activities on the Property, prior to such activities, of the potential hazards associated with the direct contact and/or transport of any potentially contaminated and/or hazardous soil or other material from the Property. Easement holders, contractors and/or workers shall also be informed by the Owner of any potential hazards associated with releases from contaminated media located on the Property.

G. The Owner shall preserve, protect and replace, as necessary, all environmental monitoring stations that may be installed on the Property.

H. The Owner acknowledges that structural impediments (i.e., foundations and concrete slabs) existing at the time of cleanup made complete remediation of the soil contamination on this Property impracticable. If the structural impediments on this Property are removed or modified in such a manner as to provide for exposure to any remaining subsurface contamination, the Owner shall notify KDHE no less than fifteen (15) calendar days prior to removal of such structural impediments. KDHE may require that soils be tested to determine any additional hazards to human health and the environment from the exposed soil. Based on the potential hazards associated with the exposed soil as determined by KDHE, KDHE may require specific protective or remedial actions to prevent future impacts to human health and the environment.

I. The Owner shall evaluate the vapor intrusion pathway with KDHE during planning and prior to constructing buildings on the Property.

LOCAL ORDINANCES AND ZONING:

The Owner and KDHE acknowledge that the following local ordinances and zoning requirements in place at the time of recording this Agreement shall be used in addition to the restrictions, prohibitions and limitations set forth in this Agreement.

The Property is zoned I-1 Light Industrial by the city of Concordia, Kansas Planning and Zoning Department.

ACCESS:

The Owner hereby agrees and conveys to KDHE, its agents, contractors, and employees, access to the Property for the term of this Agreement to enter or come upon the Property to inspect the Property and perform any required action (i.e., monitoring, sampling, etc.) KDHE deems necessary for any one or more of the following purposes:

1. Ensuring that use, occupancy, and activities of and at the Property are consistent with this Agreement;

2. Inspecting protective structures and any other remedial systems to ensure their designed operation, performance and structural integrity;

3. Documenting environmental conditions of and at the Property;

4. Ensuring implementation and enforcement of the requirements, restrictions, prohibitions, and other limitations described in this Agreement; and/or

5. Performing any additional investigations or remediation deemed necessary by KDHE to protect public health and the environment.

FUNDING:

On behalf of the Owner, ONEOK has agreed to submit to KDHE a one-time payment of $10,000 to compensate the KDHE for costs incurred to perform inspections and tracking of the terms and requirements of this Agreement. The funding requirement for this Agreement is based on the size of the Property, physical properties of residual contamination, frequency of KDHE's anticipated inspections and anticipated inspection costs.

DURATION:

The Owner hereby agrees that this Agreement extends in perpetuity unless and/or until removal following approval by KDHE pursuant to K.S.A. 2007 Supp. 65-1,227.

MONITORING AND INSPECTION REQUIREMENTS:

Groundwater monitoring, currently overseen by the KDHE-Bureau of Environmental Remediation under the auspices of the State Cooperative Program, is conducted under a Consent Order Agreement (Case No. 94-E-0172) Amendment signed by the KDHE Secretary on May 5, 2003, and mutually agreed to by ONEOK, INC., formerly known as WAI Inc.

KDHE shall visually inspect the Property once every five (5) years documenting the condition and current uses of the Property to verify the Property is being used as indicated herein. KDHE shall consider modifications of the frequency of inspection and reporting if warranted by technical data.

MAINTENANCE REQUIREMENTS:

The Owner hereby agrees to provide post-construction maintenance of the ground surface to facilitate surface water runoff and drainage at the area on the Property where source removal was conducted in 2008. Maintenance involves inspection and repairs that may include addition of AB-3 Aggregate or soil with vegetation to correct the effects of settlement, subsidence or other events which may allow residual contamination to infiltrate into the groundwater.

OTHER TERMS AND CONDITIONS:

The Owner hereby agrees to provide KDHE written notification no less than fifteen (15) calendar days prior to any sale, lease, conveyance or other transfer of the Property. The notice shall include the name and business address (if applicable) of the transferee and the expected date of transfer.

Within fifteen (15) calendar days of real property conveyance, the Owner hereby agrees to provide KDHE a copy of the recorded deed with legal description and corresponding survey map for which this Agreement applies.

The Owner hereby agrees to provide KDHE written notification no less than fifteen (15) calendar days prior to any land use changes at the Property.

The Owner acknowledges that the requirements in this Agreement may not be extinguished, limited or impaired through adverse possession, abandonment, waiver, lack of enforcement, or other common law principles, pursuant to K.S.A. 2007 Supp. 65-1,227(e).

The Owner shall cause any lease, grant, or other transfer of any interest in the Property to include a provision expressly requiring the lessee or transferee to comply with the terms of this Agreement. The failure to include such a provision shall not affect the validity or applicability to the Property of this Agreement.

This Agreement may be modified by mutual written agreement by the Owner and KDHE. Within thirty (30) calendar days of executing an amendment, modification, or termination of this Agreement, the Owner shall record such amendment, modification, or termination with the Cloud County Register of Deeds, and within thirty (30) calendar days thereafter, the Owner shall provide a copy of the recorded amendment, modification, or termination to KDHE that bears the seal and/or notarized signature of the Register of Deeds.

ENFORCEABILITY:

If the terms of this Agreement are not being implemented by the Owner or contamination at the Property presents a hazard to public health or the environment, KDHE may take such action as authorized by K.S.A. 2007 Supp. 65-1,229, including:

A. Issue an order directing the Owner to correct any deficiencies and fully implement the terms of this Agreement.

B. Issue an order retracting this Agreement and any remedial action at the Property and requiring the Owner to implement a remedial action at the Property to attain a cleanup standard that will allow for unrestricted use of the Property.

EFFECTIVE DATE OF AGREEMENT:

The Owner shall provide to KDHE a copy of this Agreement bearing the seal or notarization of the Register of Deeds in **Cloud County, Kansas** within ninety (90) days from **certified receipt** of this fully executed Agreement from KDHE.

The Owner shall provide KDHE with funding as determined by KDHE in accordance with K.S.A. 2007 Supp. 65-1,226 within ninety (90) days from **certified receipt** of this fully executed Agreement from KDHE.

Proper recording of all necessary documents and submission of required funding shall be conditions precedent to the effectiveness of this Agreement.

DOCUMENT NUMBER: 08-EUC-0038	PROJECT NUMBER: C5-015-70031	PROPERTY CATEGORY: 2

IN WITNESS WHEREOF, KDHE and the Owner have entered into and executed this Environmental Use Control Agreement through their duly authorized representatives as of this 24th day of September, 2009.

Kansas Department of Health and Environment

By: _____
Roderick L. Bremby, Secretary

ACKNOWLEDGMENT:

STATE OF KANSAS)
)ss:
COUNTY OF SHAWNEE)

BE IT REMEMBERED, on this 24th day of September, 2009, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Roderick L. Bremby, Secretary and authorized representative of KDHE, who is personally known to be such person who executed the above document on behalf of KDHE, and such person duly acknowledged the execution of the same to be his/her act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal at my office in Shawnee County, Kansas, the day and year last written above.

_____
Notary Public in and for said County and State

NOTARY PUBLIC - State of Kansas
SHELIA A. PENDLETON
My Appt. Expires 11.07.2012

My Term Expires: 11.07.2012

Corporation: **Abram Ready Mix, INC.**

By:_____ Date:_____

Print Name:_____

Title:_____

ACKNOWLEDGMENT:

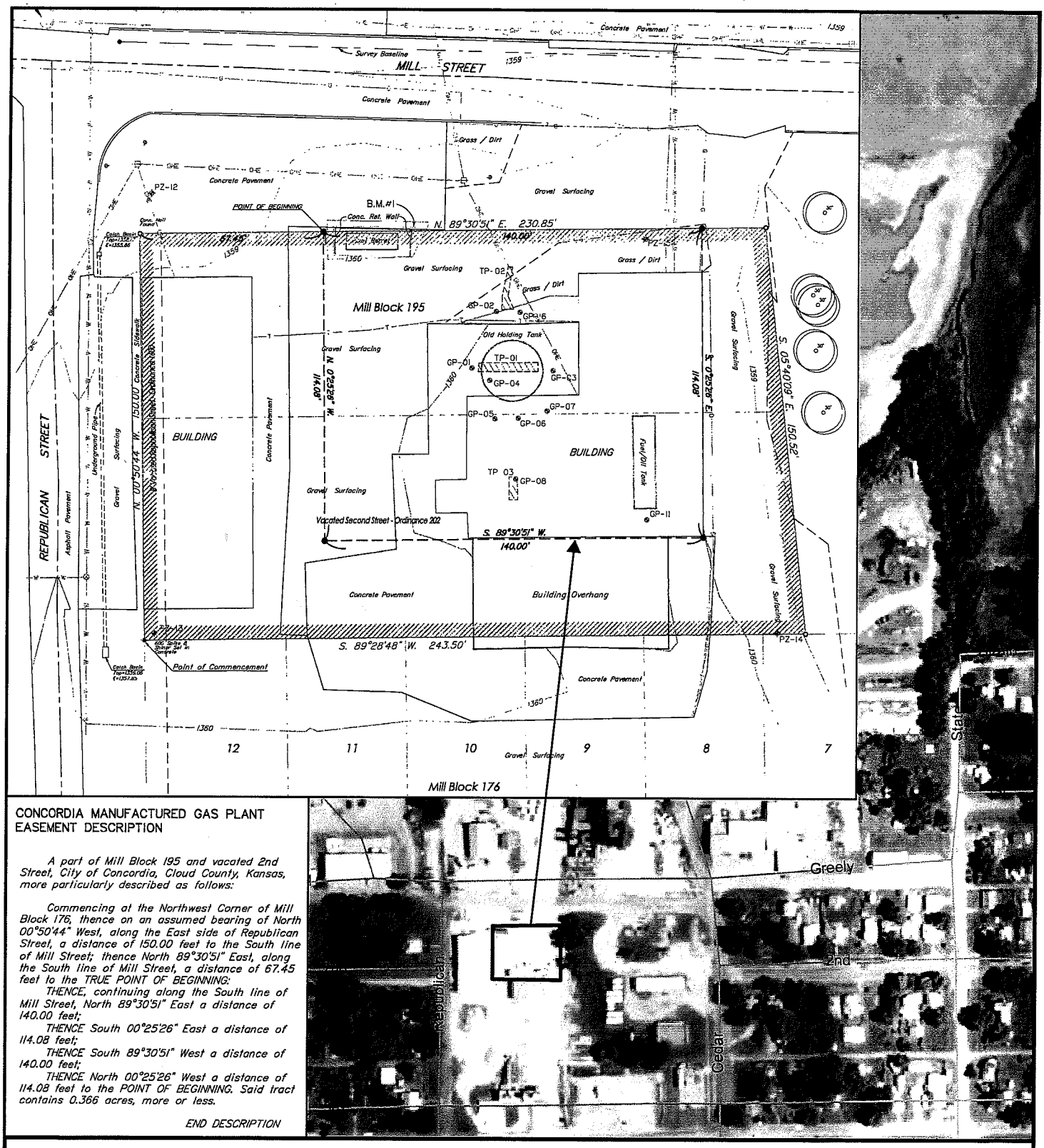
STATE OF _____)
)ss:
COUNTY OF _____)

BE IT REMEMBERED, on this _____ day of _____, 2009, before me, the undersigned, a Notary Public in and for the County and State aforesaid, came _____, authorized representative of _____, who is personally known to be such person who executed the above document on behalf of said corporation, and such person duly acknowledged the execution of the same to be his/her act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal at my office in _____ County, _____, the day and year last written above.

_____
Notary Public in and for said County and State

My Term Expires: _____



CONCORDIA MANUFACTURED GAS PLANT
EASEMENT DESCRIPTION

A part of Mill Block 195 and vacated 2nd Street, City of Concordia, Cloud County, Kansas, more particularly described as follows:

Commencing at the Northwest Corner of Mill Block 176, thence on an assumed bearing of North 00°50'44" West, along the East side of Republican Street, a distance of 150.00 feet to the South line of Mill Street; thence North 89°30'51" East, along the South line of Mill Street, a distance of 67.45 feet to the TRUE POINT OF BEGINNING:

THENCE, continuing along the South line of Mill Street, North 89°30'51" East a distance of 140.00 feet;

THENCE South 00°25'26" East a distance of 114.08 feet;

THENCE South 89°30'51" West a distance of 140.00 feet;

THENCE North 00°25'26" West a distance of 114.08 feet to the POINT OF BEGINNING. Said tract contains 0.366 acres, more or less.

END DESCRIPTION

0 100 200 400
Feet

KANSAS DEPARTMENT OF HEALTH & ENVIRONMENT

N

LEGEND

Local Roads

EUC Area Boundary (approximate)

EXHIBIT A

FMGP - Concordia
Concordia, Kansas
08-EUC-0038

Map Prepared by KDHE

Burns & McDonnell World Headquarters
9400 Ward Parkway
Kansas City, MO 64114
Phone: 816-333-9400
Fax: 816-333-3690
www.burnsmcd.com

Burns & McDonnell: Making our clients successful for more than 100 years